Q8 SQL KEY

Question 1

At the bottom of this question, you are asked to fill in a blank statement.

Consider the following two table definitions:

```
CREATE TABLE Book (
  Isbn INTEGER,
  Title VARCHAR(60) NOT NULL, /* the attribute types are of no relevance */
  PublisherName VARCHAR(50) NOT NULL,
  PRIMARY KEY (Isbn),
  FOREIGN KEY (PublisherName) REFERENCES Publisher (Name)
);

CREATE TABLE Publisher (
  Name VARCHAR(50),
  Address VARCHAR(100) NOT NULL,
  PRIMARY KEY (Name),
  CHECK (EXISTS (SELECT * FROM Book WHERE Name = Book.PublisherName))
);
```

We want a trigger in SQLite that implements the following functionality. If a book is deleted from the Book table, then if this was the only book associated with a publisher, then that publisher is deleted from the Publisher table.

```
CREATE TRIGGER DeleteLastBookOfPublisher
AFTER DELETE on Book
WHEN NOT EXISTS (SELECT *
                 FROM Book B
                 WHERE B.PublisherName = old.PublisherName)
BEGIN

/* What statement would you put here to complete the trigger */

END;
```

Correct Answer:
Correct
DELETE FROM Publisher WHERE Name = old.PublisherName;

Question 2

Explain why the in-table CHECK in Publisher from question Q1, and the trigger of Q1, collectively enforce the following general assertion:

```
CREATE ASSERTION PublisherBookConstraint
CHECK (NOT EXISTS (SELECT *
                   FROM Publisher P
                   WHERE P.Name NOT IN (SELECT B.PublisherName
                                        FROM Book B)))
```

Correct Answer:
Correct
The in-table CHECK will ensure that when an insertion or update is made to the Publisher table, that the Book table will be examined to see if the publisher is represented there. The trigger ensures that when a deletion is done to the Book table, that the publisher of that book is still represented in the Book table (or is deleted). The general assertion (if any platform supported it) would be checked whenever deletions to Book or insertions/updates to Publisher were made.